International Atomic Energy Agency

GENERAL CONFERENCE

GC

GC(41)/14
5 August 1997

GENERAL Distr.
Original: ENGLISH

Forty-first regular session
Item 13 (b) of the provisional agenda
(GC(41)/1)

MEASURES TO STRENGTHEN INTERNATIONAL CO-OPERATION IN NUCLEAR, RADIATION AND WASTE SAFETY

(b) MEASURES TO RESOLVE INTERNATIONAL RADIOACTIVE WASTE MANAGEMENT ISSUES: ESTABLISHING PREDISPOSAL WASTE DEMONSTRATION CENTRES

1. Last year, in resolution GC(40)/RES/12, the General Conference affirmed the importance of international co-operation in enhancing the safe management of radioactive waste through bilateral and multilateral mechanisms.

2. The General Conference also stressed the importance of continuing to facilitate the transfer of theoretical knowledge and practical skills for the management of radioactive waste arising from the application of nuclear techniques.

3. In addition, the General Conference invited the Director General to assist Member States upon request in expanding the utilization of suitable existing regional training centres for practical training and demonstration of techniques for the processing and storage of radioactive waste arising from the application of nuclear techniques in medicine, research and industry, so that a demonstration and training facility would be available in respective regions by strengthening co-operation and by seeking to co-ordinate resources, including those existing in developing countries.

4. The General Conference further requested the Board and the Director General to report on the implementation of resolution GC(40)/RES/12.

5. In June 1997, the Board considered a document prepared to respond to the request referred to in paragraph 4 above and agreed that the document be submitted - after necessary updating - to the General Conference. The attached paper is the updated version of that report.

97-02796

MEASURES TO RESOLVE INTERNATIONAL RADIOACTIVE WASTE MANAGEMENT ISSUES: ESTABLISHING PREDISPOSAL WASTE DEMONSTRATION CENTRES

Background

1. The safe management of radioactive waste requires both basic knowledge and extensive practical experience. The IAEA has produced technical manuals and organized training courses, fellowships and scientific visits through which knowledge and experience on how to manage radioactive waste has been transferred to waste management personnel in developing Member States.

2. Although basic knowledge of waste management has been provided through past IAEA activities to most Member States, there is still a need for practical experience in "pre-disposal technology" which includes, inter alia, waste segregation, collection, treatment, conditioning and interim storage, and for the demonstration of appropriate methodology.

3. Technical staff from developing Member States need to gain more experience and confidence by combining their theoretical knowledge with practical experience in handling real radioactive waste using methods and procedures which are applicable to the situation and level of resources available in their respective countries.

4. The activity to demonstrate predisposal waste management technology was developed under project C.5.03 of the IAEA's Programme and Budget for 1995-96. The demonstrations and training are now being implemented within the framework of the new Model Project INT/4/131 (Sustainable Technologies for Managing Radioactive Wastes). The hands-on waste technology demonstrations are a key objective of this Model Project which will provide developing Member States with appropriate technologies for and practical experience of all pre-disposal steps needed to manage wastes from their nuclear applications.

5. The methods and procedures to be demonstrated are documented in IAEA Technical Reports or Technical Documents following internationally accepted standards and criteria.

Progress and Status

6. Among waste management facilities, which have been previously established with technical support of the IAEA, are the Waste Processing and Storage Facility at the Çekmece Nuclear Research and Training Center, Istanbul, Turkey and the Waste Processing and Storage Facility at the Nuclear Energy Commission, CEN Lo Aguirre, Santiago, Chile. Based on initiatives from the respective governments, these two facilities have been upgraded by the respective governments with some support from the IAEA. Only small modifications were necessary to ensure that demonstrations can be done in a proper way. The possibility to use the facilities for demonstration purposes clearly illustrates the success of the earlier projects to establish the facilities and the efficient use of IAEA resources.

7. The necessary technical documentation, which describes in detail procedures for treatment, conditioning and storage of liquid waste, solid waste, and spent sealed sources generated from nuclear applications, has been prepared as a "standard package". The described procedures use as simple techniques as possible, meeting IAEA recommendations and standards, to prepare the waste for storage and eventual disposal and thus are suitable for use in developing countries.

8. The first demonstration was held at the Çekmece Nuclear Research and Training Center, Istanbul, Turkey, from 13 to 31 May 1996. It was attended by seven participants from Albania, Greece, Syria and Turkey who were able to practice management of both liquid and solid waste and of spent sealed sources. The hands-on activities during the three week exercise included treatment, conditioning and storage of about one cubic meter of solid waste, 1000 liters of liquid waste and three sealed radiation sources. As a result of the experience from the demonstration, the design of the waste processing and storage facility in one of the Member States has been modified to better meet its national needs. A second demonstration has been held in Turkey from 9 to 20 June 1997 during which seven participants from Jordan, Moldova and Turkey practiced conditioning and practical management of spent sealed sources and of solid waste.

9. In Latin America, the first demonstration was held at the waste management facility of the Nuclear Energy Commission, CEN Lo Aguirre, Santiago, Chile, from 5 to 16 May 1997. Ten participants from Bolivia, Chile, Guatemala, Paraguay and Uruguay attended. This demonstration, which corresponds to the needs in the countries, included processing of solid waste and spent sealed sources and storage of waste.

10. Agreement has been reached with the Ministry of Atomic Energy (MINATOM) of the Russian Federation to provide demonstrations for Newly Independent States of the former Soviet Union (NIS) and East-European countries. The Bochvar Institute of Inorganic Materials in Moscow and the Scientific and Industrial Association "RADON" in Sergiev Posad are planned to serve as hosts for the demonstrations. The scope and technical content of the demonstration have been worked out jointly by Russian experts and IAEA staff.

Future Activities

11. As the TC Model Projects' modality provides new means of project management to improve assistance to developing Member States and to achieve significant results within a relatively short period of time, the inclusion of the demonstration programme within the Model Project INT/4/131 is an efficient means to implement the programme and ensure its high priority to Member States and within the Agency. The training of operators of radioactive waste facilities is complementary to other objectives of this Model Project which include, inter alia, conditioning and storage of sealed radioactive sources (with special emphasis on discarded radium sources) and developing facilities to treat, condition, and store liquid and solid wastes from non-fuel-cycle nuclear applications.

12. Needs for hands-on demonstration and training will be identified through direct requests from Member States, the Model Project INT/4/131, the Model Project INT/9/143 (Upgrading Radiation Protection Infrastructure) and fact finding missions. Based on those identified needs, the demonstrations will be organized at host institutions in the different geographic regions to upgrade skills of waste management technical staff in developing Member States.

13. Upgrading facilities for demonstrating predisposal waste management methods and procedures to NIS countries will be finalized as planned in the Russian Federation in 1997 and the first demonstration is planned for early 1998. In 1997/98 the work to identify and upgrade facilities for demonstrations in Asia and the Pacific and the Africa regions will be continued.

14. Additional training and demonstrations in the Çekmece Nuclear Research and Training Center, Istanbul, Turkey, and at the Nuclear Energy Commission, CEN Lo Aguirre, Santiago, Chile, are envisaged for 1998 after full assessment of the results of the previous demonstrations.

15. A handbook giving guidance on procedures for institutions setting up and performing demonstrations of waste management methods and procedures is being prepared. A consultants' meeting on the issue is scheduled for November 1997. The experience gained during the first preparatory work and the implementation of the three first demonstrations will be utilized.

16. Demonstrations of predisposal methods and procedures in radioactive waste management are expected to be completed within two TC programme cycles. The achievements will be reported each year by the Secretariat in the Technical Co-operation Annual Reports.